

TECHNICAL MEMORANDUM FOR CESPK-RD-U

SUBJECT: Mercury and Methyl Mercury Technical Assessment for the Proposed Southeast Connector Project, Washoe County, Nevada

The SouthEast Connector Project (Project) is a proposed arterial in Reno, Sparks, and Washoe County that extends from the intersection of Veterans Parkway and South Meadows Parkway in the south to Clean Water Way in the north. Historical mining practices have caused increased total mercury loading into Washoe Lake, Steamboat Creek (adjacent to the Project), the Truckee River and Pyramid Lake. The Project disturbs mercury impacted sediment and potentially increases the production of methyl mercury in the system. This Technical Memorandum evaluates whether methyl mercury production will increase after Project completion.

The following literature was reviewed for this Technical Memorandum:

1. Formal and informal comments from USEPA and the Nevada Department of Environmental Protection and responses to same regarding the proposed Project
2. CH2MHill, 2013. Technical Memorandum, Characterization of Mercury Contamination and Geochemical Processes, Prepared for the Regional Transportation Commission, Project Number 458732
3. CH2MHill, 2014. Technical Memorandum, Mercury Availability and Methyl mercury Generation Potential in SouthEast Connector Floodplain. Project Number 458732. April 8, 2014.

Many parameters influence the production of methyl mercury in riparian systems, with no clear correlation between total mercury concentration and methylation. In addition, some wetlands act as mercury sinks while others with similar geochemical and morphological characteristics act as methylation beds. The proposed Project incorporates specific design features that help mitigate potential production of methyl mercury. These include:

1. Removal of an estimated 10,000 kg of total mercury that will be permanently isolated beneath the roadway. This material represents the bulk of the in-situ mercury source material within the project boundaries, that when seasonally inundated, could potentially methylate. Future flood flows could also transport this material down Steamboat Creek to the Truckee River and Pyramid Lake Systems.
2. Design features for the new riparian floodplain that limit sedimentation reduces the total mercury loading during flooding that could methylate if conditions after construction support mercury methylation. An estimated 0.43 kg/yr will potentially be deposited in the floodplain.

3. Reducing the energy of the system by reconnecting Steamboat Creek to the floodplain. Not only will this action provide habitat, it will limit future erosion of existing mercury impacted sediment from downstream transport and potential methylation in another part of the system.

As indicated, the proposed Project impacts a number of reaches of Steamboat Creek. There are currently no Total Maximum Daily Load (TMDL; <http://ndep.nv.gov/bwqp/tmdl.htm>) requirements for mercury or methyl mercury in either Steamboat Creek or downstream in the Truckee River. However, best management practices are recommended to limit sediment loading into Steamboat Creek and to comply with downstream turbidity TMDLs in place on the Truckee River. Sediment management will further reduce potential Project impacts on total mercury loading and potential methyl mercury production in the watershed.

Conclusion:

The proposed Project removes mercury impacted source sediments that could potentially methylate following high energy flood flows, and also supports lower energy flows by reconnecting the historic flood plain. Further, the relatively short residence time coupled with low predicted sedimentation rates indicates that a large flux of methyl mercury is not likely after Project construction.